Claims:

1. A method of producing nanocapsules having a diameter of from 50 nm to 10 µm,
characterized in that
liposomes are produced which are coated with a polymer P1 by binding the polymer P1 to the liposome surface in an aqueous solution, and the coated polymer P1 then is covalently crosslinked in an aqueous solution with a polymer P2 which is different from polymer P1, and additional polymer layers are optionally coated by crosslinking.

2. The method according to claim 1,
characterized in that
the liposomes are dissolved subsequent to crosslinking the polymers, preferably by leaching with a detergent.

3. The method according to claim 1 or 2,
characterized in that
liposomes are used as starting material which carry biologically active compounds or compounds of a detection system, which compounds remain in the nanocapsules when performing the method.

4. The method according to any of claims 1 to 3,
characterized in that
those polymers are used as water-soluble polymers P1 and P2 which have amino, carboxyl, thiol, hydrazo, hydroxy, acidic hydrogen, aldehyde and/or active ester groups or combinations of these groups as functional groups, and which do not themselves undergo formation of micellar or vesicular structures.

5. The method according to any of claims 1 to 4, characterized in that auxiliary agents are used to crosslink polymer P1 with the liposomes or polymer P1 with polymer P2.

6. The method according to claim 5, characterized in that isothiocyanates, isocyanates, acylazides, N-hydroxysuccinimide esters, sulfonyl chlorides, aldehydes, epoxides, carbonates, imidoesters, carbodiimides, anhydrides, haloacetyls, alkyl halides, maleimides, aziridines, pyridyldisulfides, diazoalkanes, diazoacetyls, carbonyldiimidazoles, N-hydroxysuccinimidylchloroformiates, or compounds containing these functional groups in suitable combinations are used as auxiliary agents.

7. The method according to any of claims 1 to 3, characterized in that the water-soluble polymers P1 or P2 have chelating or chelate-binding properties.

8. The method according to any of claims 1 to 6, characterized in that the polymers P1 and/or P2 are proteins.

9. The method according to any of claims 1 to 6, characterized in that the polymers P1 and/or P2 are carbohydrates.

10. The method according to any of claims 1 to 6, characterized in that the water-soluble polymers P1 and/or P2 are synthetic polymers.

11. The method according to any of claims 1 to 10, characterized in that

the nanocapsules obtained are modified at their surface, preferably using poly(ethylene glycol), proteins, peptides, or hormones, with poly(ethylene glycol) being particularly preferred.

12. Nanocapsules having a diameter of from 50 nm to 10 µm, characterized in that
the coat layer thereof is comprised of at least two different polymers P1 and P2 crosslinked with each other.

13. The nanocapsules according to claim 12,
characterized in that
a lipid layer is present in addition, whereon the polymer layers are situated.

14. Nanocapsules, produced according to one or more of claims 1 to 11.

15. Use of the nanocapsules according to any of claims 12 to 14 in the production of pharmaceutical formulations used in the application of active substances.

16. Use of the nanocapsules according to any of claims 12 to 14 in biochemical diagnostics.

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